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EXAMINER

STORK, KYLE R

ART UNIT PAPER NUMBER

2178

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/034,639

Applicant(s)

KURASHINA, HIROYASU

Examiner

Kyle R Stork

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This final-office action is in response to the amendment filed 31 January 2005.
2. Claims 1-23 are pending. Claims 1, 12, and 23 are independent claims. The rejection of claims 1-23 under 35 U.S.C. 112 has been withdrawn as necessitated by the amendment. Further, the rejection of dependent claims 3 and 14 under 35 U.S.C. 112 has been withdrawn.

### ***Drawings***

3. The drawings were received on 31 January 2005. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10, 12-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savitch (Problem Solving With C++: The Object of Programming, 1999) in further view of Sedgewick (Algorithms in C, 1998).

As per independent claim 1, Savitch discloses a method of processing characters, comprising the steps of:

- Setting, as a text matrix, a matrix which is capable of having elements of M by L characters which are arbitrary at the maximum, where M represents a number of characters which can be arranged in an X direction as one of a row direction and a column direction in the matrix and is defined as an integer equal to or larger than 1 and L represents a number of characters which can be arranged in a Y direction as another of said row direction and said column direction and is defined as an integer equal to or larger than 2 (pages 610-611)
- Setting, as a display matrix, a partial matrix corresponding to a portion of said text matrix and capable of having elements of N by J characters at the maximum, where N represents a number of characters which can be arranged in the X direction and is defined as an integer satisfying the relationship of  $1 \leq N \leq M$  and J represents a number of characters which can be arranged in said Y direction and is defined as an integer satisfying the relationship of  $1 \leq J < L$  (page 611: Here, the display\_page function displays a specified portion of the text matrix.)
- Displaying an image of each character contained in said display matrix in a manner correlated with a portion of said char character in said display matrix, based on the text data of the character (page 611: Here, the display\_page function uses cout to print the character to a display.)
- Setting as a k-th candidate processing matrix, an arbitrary k-th one, where  $k = 1, 2, 3, \dots$  or L, or L partial matrices of the text matrix arranged in the Y direction as first of L-th candidate processing matrices each of which is capable of having one character in the Y direction and M characters at the maximum in the X direction

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(page 611: Here, display\_page contains the code for displaying the k-th candidate processing matrix. The inner for loop displays one character in the Y direction and 100 characters in the X direction, where M is equal to 100.)

- Selecting one of said L candidate processing matrices as a processing matrix, and then determining characters contained in the processing matrix as processing characters (page 610-611)

Savitch fails to specifically disclose storing text data representative of each character contained in the text matrix in a manner correlated with a position of the character in a text matrix. However, Sedgewick discloses storing text data representative of each character contained in the text matrix in a manner correlated with a position of the character in a text matrix (page 116, paragraph 1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined Savitch's method of text indexing and display with Sedgewick's method of storing text in memory, since it would have allowed a notational convenience to programs in referencing text (Sedgewick: page 116).

As per dependent claim 2, Sedgewick and Savitch disclose the limitations similar to those in claim 1 and the same rejection is incorporated herein. Savitch further discloses the step of shifting a position of the display matrix in the text matrix (page 611: Here, the inner for-loop in display\_page shifts the position of the display matrix in the text matrix).

As per dependent claim 3, Sedgewick and Savitch disclose the limitations similar to those in claim 1, and the same rejection is incorporated herein. Savitch further

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discloses the processing matrix is selected from J candidate processing matrices of the L candidate processing matrices, each of the J candidate processing matrices having at least part thereof overlapping the display matrix (page 611).

As per dependent claim 4, Sedgewick and Savitch disclose the limitations similar to those in claim 3, and the same rejection is incorporated herein. Savitch further discloses the method wherein the processing matrix is in a predetermined position in sequence of the J candidate processing matrices (page 611: Here, the outer for-loop in display\_page references the J candidate processing matrices. display\_page begins with J in the predetermined position of 0).

As per dependent claim 5, Sedgewick and Savitch disclose the limitations similar to those in claim 1, and the same rejection is incorporated herein. Savitch further discloses the method further comprising the step of editing the text data of the processing characters by addition, deletion, or modification (page 592: Here, manipulation of arrays is discussed, and Savitch warns against overwriting the null character.)

As per dependent claim 6, Sedgewick and Savitch disclose the limitations similar to those in claim 1, and the same rejection is incorporated herein. Savitch further discloses the method wherein the characters in the text matrix include characters forming at least one character string and the k-th candidate processing matrix has one or more character strings arranged in the X direction (page 610-611: Here, Savitch details a page of characters containing 30 lines and 100 characters per line. display\_page, outputs the k-th candidate processing matrix by printing one line.)

As per dependent claim 7, Sedgewick and Savitch disclose the limitations similar to those in claim 6, and the same rejection is incorporated herein. Savitch further discloses the method wherein the characters in the matrix include at least one attribute character accompanying the characters forming the at least one character string, the at least one attribute character indicating at least one of an attribute of each character string and an attribute of the characters forming each string (page 610-611).

As per dependent claim 8, Sedgewick and Savitch disclose the limitations similar to those in claim 7, and the same rejection is incorporated herein. Savitch further discloses the method wherein the attribute character includes a position information character indicative of at least one of a line number, a paragraph number and a document number of the at least one character string (page 611: Here, display\_page prints the lines according to the line number).

As per dependent claim 9, Sedgewick and Savitch disclose the limitations similar to those in claim 6, and the same rejection is incorporated herein. Savitch further discloses the method wherein the step of storing text data includes the step of storing format information of each character string to be laid out (page 590: Here, Savitch explains that the /n is the formatting character for a return, and may be stored in any char array. As Savitch explains on page 611, a two-dimensional array is simply an array of arrays, so any character that can be stored in a one-dimensional array can be stored in a two-dimensional array).

As per dependent claim 10, Sedgewick and Savitch disclose the limitations similar to those in claim 1, and the same rejection is incorporated herein. Savitch

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further discloses the method further comprising the step of printing at least part of an image of said processing characters to a print medium, based on the text data of the processing characters (page 611: Here, display\_page prints the text one line at a time.)

As per independent claim 12, the applicant recites the apparatus for performing the method of claim 1. Therefore, claim 12 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 13, the applicant recites the apparatus for performing the method of claim 2. Therefore, claim 13 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 14, the applicant recites the apparatus for performing the method of claim 3. Therefore, claim 14 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 15, the applicant recites the apparatus for performing the method of claim 4. Therefore, claim 15 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 16, the applicant recites the apparatus for performing the method of claim 5. Therefore, claim 16 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 17, the applicant recites the apparatus for performing the method of claim 6. Therefore, claim 17 is similarly rejected under Savitch and Sedgewick.



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As per dependent claim 18, the applicant recites the apparatus for performing the method of claim 7. Therefore, claim 18 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 19, the applicant recites the apparatus for performing the method of claim 8. Therefore, claim 19 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 20, the applicant recites the apparatus for performing the method of claim 9. Therefore, claim 20 is similarly rejected under Savitch and Sedgewick.

As per dependent claim 21, the applicant recites the apparatus for performing the method of claim 10. Therefore, claim 21 is similarly rejected under Savitch and Sedgewick.

As per independent claim 23, the applicant recites the computer-readable storage medium storing a program for performing the method of claim 1. Therefore, claim 12 is similarly rejected under Savitch and Sedgewick.

6. Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savitch and Sedgewick in further view of Nunokawa et al. (US 6149325).

As per dependent claim 11, Sedgewick and Savitch disclose the limitations similar to those in claim 10, and the same rejection is incorporated herein. Sedgewick and Savitch fail to disclose the method wherein the print medium is a tape. Nunokawa discloses the method wherein the print medium is a tape (Figures 17-18).

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It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have combined Sedgewick and Savitch's method of outputting to a print medium with Nunokawa's method of printing to a tape, since it would have allowed a user save space when storing the printed information.

As per dependent claim 22, the applicant recites the apparatus for performing the method of claim 11. Therefore, claim 22 is similarly rejected under Savitch, Sedgewick, and Nunokawa.

### ***Response to Arguments***

7. Applicant's arguments filed 31 January 2005 have been fully considered but they are not persuasive.

As per independent claims 1, 12, and 23, the applicant argues that "a person of ordinary skill in the art of character processing... would not be expected to formulate the invention as set forth in claim 1 based on partial and fragmentary pieces of information relating to... Savitch." The examiner respectfully disagrees.

As per independent claim 1, Savitch discloses a method of processing characters, comprising the steps of (reference letters added for clarity):

- (a) Setting, as a text matrix, a matrix which is capable of having elements of M by L characters which are arbitrary at the maximum, where M represents a number of characters which can be arranged in an X direction as one of a row direction and a column direction in the matrix and is defined as an integer equal to or larger than 1 and L represents a number of characters which can be arranged in

a Y direction as another of said row direction and said column direction and is defined as an integer equal to or larger than 2 (pages 610-611)

- (b) Setting, as a display matrix, a partial matrix corresponding to a portion of said text matrix and capable of having elements of N by J characters at the maximum, where N represents a number of characters which can be arranged in the X direction and is defined as an integer satisfying the relationship of  $1 \leq N \leq M$  and J represents a number of characters which can be arranged in said Y direction and is defined as an integer satisfying the relationship of  $1 \leq J < L$  (page 611: Here, the display\_page function displays a specified portion of the text matrix.)
- (c) Displaying an image of each character contained in said display matrix in a manner correlated with a portion of said char character in said display matrix, based on the text data of the character (page 611: Here, the display\_page function uses cout to print the character to a display.)
- (d) Setting as a k-th candidate processing matrix, an arbitrary k-th one, where  $k = 1, 2, 3, \dots$  or L, or L partial matrices of the text matrix arranged in the Y direction as first of L-th candidate processing matrices each of which is capable of having one character in the Y direction and M characters at the maximum in the X direction (page 611: Here, display\_page contains the code for displaying the k-th candidate processing matrix. The inner for loop displays one character in the Y direction and 100 characters in the X direction, where M is equal to 100.)

- (e) Selecting one of said L candidate processing matrices as a processing matrix, and then determining characters contained in the processing matrix as processing characters (page 610-611)

As per limitation (a), Savitch discloses the method of creating a multidimensional array (matrix). This multidimensional array may contain a plurality of indices into the array. Examples on page 610 disclose a 2 by 3 multidimensional array of integers with a name of "matrix," and a 30 by 100 multidimensional array of characters with a name of "page."

As per limitation (b), Savitch discloses the method for displaying a multidimensional array through a function named, "display\_page" on page 611. This function receives two variables, a multidimensional array and an integer. When this function is invoked, a multidimensional display array "p" is generated with the values of received multidimensional array associated to corresponding values. In this function, the multidimensional display array "p" displays the values of the multidimensional array by displaying all of the elements within a column, followed by an end line character, then proceeding to the next column.

As per limitations (c), Savitch discloses the method for displaying an image of each character contained in the display matrix through the function "display\_page" on page 611. Here, the multidimensional array is looped through to display all of the characters contained within the display array.

As per limitation (d), Savitch discloses the k-th candidate processing matrix containing an arbitrary k-th candidate which is capable of having a character stored.

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This k-th candidate is accessed by Savitch in order to display the character stored within the k-th position in "display\_page" on page 611.

As per limitation (e), Savitch discloses selecting one of the processing matrices and determining a character contained in the matrix, and further processing the characters. The function "display\_page" receives a processing matrix as input. This is then processed to access and print the character stored within the multidimensional array (page 611).

The applicant's argument that formulizing these steps into a series of steps relating to each other is not persuasive, as Savitch discloses the processing steps in a single function to perform a task, "display\_page."

The applicant's arguments with respect to claims 2-23 are not persuasive, as the applicant argues relies upon the arguments with respect to Savitch in order to overcome these rejections.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle R Stork whose telephone number is (571) 272-4130. The examiner can normally be reached on Monday-Friday (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hong can be reached on (703) 308-5465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kyle Stork  
Patent Examiner  
Art Unit 2178

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**CESAR PAULA**  
**PRIMARY EXAMINER**